

ELM MORTALITY CAUSED BY VERTICILLIUM AND
CEPHALOSPORIUM WILTS AND DUTCH ELM DISEASE ON THE
VICKSBURG NATIONAL MILITARY PARK, MISSISSIPPI

by

C. E. Affeltranger, P. A. Dugar, P. H. Peacher and M. J. Weiss

ABSTRACT

Winged elm (Ulmus alata Michx.) mortality on the Vicksburg National Military Park in Mississippi was attributed to three vascular wilts — Verticillium and Cephalosporium wilts and Dutch elm disease. Herein reported is the southernmost occurrence of Dutch elm disease in Mississippi and the Southeast.

INTRODUCTION

For the past several years mortality of winged elm (*Ulmus alata* Michx.) has occurred on the Vicksburg National Military Park in Mississippi. In 1974 approximately 50 trees were lost. Mortality in 1975 was just as severe as 1974. Because of this, Park personnel requested assistance from pathologists at State and Private Forestry, U. S. Forest Service in Pineville, Louisiana. Symptoms resembled those associated with a vascular wilt.

MATERIALS AND METHODS

Winged elms were sampled on the Park in late October 1974 and mid- and late-July 1975. Trunk and root chips, as well as branch samples, were taken from elms at the Surrender Site, at the junction of Confederate Avenue and Old Graveyard Road, and on Confederate Avenue. Evidence of phloem necrosis was looked for, but not observed. Standard isolation techniques, including the use of moist chambers, were used to process the samples.

RESULTS AND DISCUSSION

Branch samples from one tree at the Surrender Site yielded a fungus identified as *Graphium ulmi*^{1/}, the imperfect stage of *Ceratocystis ulmi* (Buism.) C. Moreau, which causes Dutch elm disease.

An isolate of *Cephalosporium* sp. Corda, the cause of Cephalosporium wilt, was obtained from a sample with vascular discoloration at the Surrender Site. Another isolate of this organism was obtained from a tree at the junction of Confederate Avenue and Old Graveyard Road. Sampled in October 1974, this tree was symptomatic at that time, but did not die until July 1975. Cephalosporium wilt of elm had been previously reported from the Midsouth (3).

Samples with vascular discoloration were also taken from the root collar of two trees on Confederate Avenue. No causal organism was isolated from a tree at the fourth Mississippi marker. However, colonies of *Verticillium* sp. Nees. were isolated from a tree across Confederate Avenue from the 62nd Tennessee marker. This organism is known to cause Verticillium wilt of elm.

Most of the affected elms on the battlefield were in the advanced stages of wilt, and no control is planned. Removal of dead and dying trees would also be a formidable task for the Park, which uses outside assistance. There is also the possibility of vascular wilt infections of elm occurring just outside the Park. This would render removal of trees ineffective. It is quite probable that a planting program involving species other than elm is the only alternative.

Dutch elm disease had been reported as far south as Tupelo, Mississippi (1) and Atlanta, Texas (2). Paul H. Peachier, in a personal communication, reported its occurrence in the vicinity of Kosciusko, Mississippi. This communication reports the southernmost occurrence of the disease not only in Mississippi, but in the Southeast. Its proximity to Louisiana suggests that this disease may soon be found there.

1/ Written communication from Dr. Lawrence Schreiber, Research Plant Pathologist, Agricultural Research Service, Delaware, Ohio.

Literature cited

1. Davis, D. D. and L. E. Drake. 1970. Forest insect and disease detection survey of the Natchez Trace Parkway. USDA, Forest Service, State and Private Forestry, Division of Forest Pest Control, Report No. 71-2-3 (1 Figure, 7 pp.).
2. Davis, D. D., G. N. Mason and P. H. Peacher. 1970. Dutch elm disease detected in Texas. Plant Disease Reprtr. 54:931.
3. Filer, T. H., F. I. McCracken and E. R. Toole. 1968. Cephalosporium wilt of elm in lower Mississippi valley. Plant Disease Reprtr. 52(2):170-171.

Resource Protection Unit, U. S. Forest Service, State and Private Forestry, Pineville, Louisiana.